

# Electrostatic Discharge (ESD) Protection Kit:

## *Reliable protection for exposed circuits*

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**A**lmost everyone is aware of ESD. We have all walked across a carpet on a dry day and received a shock when we touched an object not similarly charged. Most people understand that this miniature lightning strike can damage sensitive electronic parts. What many people do not realize is that, even on a humid day, our bodies carry enough of a charge to damage exposed electronic circuits — even when we are not walking around.

Any electronic product can be exposed to serious, often disabling, damage by ESD. A device becomes susceptible whenever its protective cover is removed to service a circuit board or even to alter field-changeable jumpers. ESD damage can be very subtle, producing no audible "zap." In fact, damage can occur without a trace of evidence — nothing to feel, see, hear or smell. The device may even work perfectly after being reassembled. Often circuits are only *impaired*, allowing them to pass a comprehensive test procedure, only to fail later.

Fortunately, there is a reliable way to ensure circuits are protected while they are exposed. Proper use of the Bently Nevada Field ESD Kit allows safe optioning and servicing of electronic parts. The kit is compact and can be easily carried to a remote work site. The kit consists of:



- A 2 foot by 2 foot static dissipative mat which serves as a safe work surface when connected to earth ground or the main chassis (rack).
- A common point grounding system which connects the mat to the ground point through a 15 foot cord and has receptacles for 2 wrist straps.
- Two adjustable wrist straps, each with a safety resistor, allow two people to work together on exposed equipment.
- A large (15 inch by 18 inch) conductive bag for wrapping circuit boards in for safe transportation.

There are some simple, common sense rules that should be observed when using the kit.

1. Always wear a properly grounded wrist strap.
2. Place the device to be serviced on a properly grounded static dissipative workmat before removing the device's protective cover.
3. Keep plastic and other synthetic items far away from the workplace.

4. Even when wearing a grounded wrist strap at a protected work station, keep sensitive devices away from plastics, clothing and hair.

5. Cotton is the preferred clothing material when working with sensitive devices; avoid polyester. If possible, long-sleeves on clothing should be rolled up.

6. When using a conductive bag, always ensure it has no holes or tears and that it completely envelops the item(s) inside. The opening should be folded over and properly closed. Use tape, never staples. Open the bag only when you are at a protected work station and are wearing a grounded wrist strap.

It has been estimated that up to 90% of all ESD damage goes undetected at the time it occurs. This undetected damage can cause a critical device to fail later. It is vital to take every precaution to eliminate the effects of ESD.

The Bently Nevada Field ESD Kit will help ensure the safe handling of sensitive electronic circuits. For more details, contact your nearest Bently Nevada sales representative. ■